

	Type	L #	Hits	Search Text	DBs
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3	BRS	L3	370	2 and plating near8 cycle	US- PGPUB; USPAT
4	BRS	L4	10	3 and net near8 plating near8 charge	US- PGPUB; USPAT
5	BRS	L5	7	4 and compar\$9 near8 plating near8 profile	US- PGPUB; USPAT
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9	BRS	L9	8846	electroplat\$9	USOCR
10	BRS	L11	2586	9 and electrode	USOCR
11	BRS	L12	68	11 and plating near8 cycle	USOCR
12	BRS	L13	0	12 and net near8 plating near8 (charge or current) same electrode	USOCR
13	BRS	L14	42	12 and plating near8 (charge or current) same electrode	USOCR
14	BRS	L15	0	14 and (comparing or compare or comparison) near8 plating near8 profile	USOCR
15	BRS	L16	0	14 and (comparing or compare or comparison) with plating near8 profile	USOCR
16	BRS	L17	0	14 and (comparing or compare or comparison) same plating near8 profile	USOCR
17	BRS	L18	1651	electroplat\$9	EPO

	Type	L #	Hits	Search Text	DBs
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19	BRS	L21	0	20 and (comparing or compare or comparison) with plating near8 profile	EPO
20	BRS	L20	6	18 and plating near8 (charge or current) same electrode	EPO
21	BRS	L22	19582	electroplat\$9	DERWEN T
22	BRS	L23	0	22 and (comparing or compare or comparison) with plating near8 profile	DERWEN T
23	BRS	L24	149	22 and plating near8 (charge or current) same electrode	DERWEN T
24	BRS	L25	14	22 and plating near8 profile	DERWEN T
25	BRS	L26	528	electroplat\$9	IBM_TD B
26	BRS	L27	0	26 and (comparing or compare or comparison) with plating near8 profile	IBM_TD B
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28	BRS	L29	0	26 and plating near8 profile	IBM_TD B

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L1 106267 ELECTROPLAT?

=> s l1 and electrode

L2 12064 L1 AND ELECTRODE

=> s l1 and ?plating (8w) (charge or current) (s) electrode

L3 223 L1 AND ?PLATING (8W) (CHARGE OR CURRENT) (S) ELECTRODE

=> s l3 and compar? (s) ?plating (8w) profile

L4 0 L3 AND COMPAR? (S) ?PLATING (8W) PROFILE

=> s l3 and plating (8w) cycl?

L5 4 L3 AND PLATING (8W) CYCL?

=> s l3 and (profile or result)

L6 45 L3 AND (PROFILE OR RESULT)

=> s l3 and ?plating (s) (profile or result)

L7 36 L3 AND ?PLATING (S) (PROFILE OR RESULT)

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L7 ANSWER 1 OF 36 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:727477 CAPLUS

DOCUMENT NUMBER: 139:355346

TITLE: Low- and High-Frequency Pulse Current and Pulse Reverse Plating of Copper

AUTHOR(S): Tantavichet, Nisit; Pritzker, Mark D.

CORPORATE SOURCE: Department of Chemical Engineering, University of Waterloo, Waterloo, ON, N2L 3G1, Can.

SOURCE: Journal of the Electrochemical Society (2003), 150(10), C665-C677

CODEN: JESOAN; ISSN: 0013-4651

PUBLISHER: Electrochemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A model for galvanostatic pulse **plating** via pulse **current** (PC) and pulse reverse (PR) modes was developed and compared with exptl. obtained **electrode** responses during Cu deposition from a CuSO<sub>4</sub>-H<sub>2</sub>SO<sub>4</sub> solution onto a rotating disk **electrode**. In addition to all forms of mass transport, electrode kinetics, and homogeneous reactions, the model incorporates capacitance effects due to double-layer charging and adsorption of an intermediate. Two important modifications from the previous model were made: fully transient rather than steady-state electrode kinetics and a series rather than parallel connection between the adsorption pseudocapacitance and faradaic reactions. The model provides excellent quant. agreement with the exptl. **results** for both PR and PC **plating** for the entire range of conditions studied and shows considerable improvement over the previous version, particularly for PR **plating**. Fitting the model to some of the exptl. data reveals that the double-layer capacity varies inversely with the square root of frequency for pulses of 500 Hz or more. Electrode responses do not totally become d.c.-like at frequencies  $\leq 50$  kHz. Also, at high enough frequencies ( $\geq 5$  kHz) during PR plating, the electrode potentials do not rise above the open-circuit potential during the reverse-time, indicating that Cu dissoln. does not occur and leading to a response similar to that observed during high-frequency PC plating.

REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 2 OF 36 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1995:499151 CAPLUS

DOCUMENT NUMBER: 122:276515

TITLE: Application of scanning vibrating electrode technique to study the localized corrosion of hardfacing alloy in sodium chloride solution

AUTHOR(S): Tsuru, Yutaka; Sekitani, Masanori; Nakamura, Zyunchi; Saitou, Akio

CORPORATE SOURCE: Dept. of Mat. & Eng., Kyushu Inst. of Tech., Kitakyushu, 804, Japan

SOURCE: Zairyo (1994), 43(494), 1387-92  
CODEN: ZARYAQ; ISSN: 0514-5163

DOCUMENT TYPE: Journal

LANGUAGE: Japanese

AB A microelectrode consisting of an Ag/AgCl reference **electrode** was prepared by using the **electroplating** method on a tungsten wire as a corrosion **current** sensor for the scanning vibrating **electrode** technique (SVET), and it was applied to measure the corrosion current **profile** over a hardfacing alloy after corrosion in 10-3M sodium chloride. A good correlation was observed between the pitting corrosion current profile and the surface morphol. of the corroded specimen. The pitting corrosion of the specimen developed in a chromium depleted zone between beads of weld metal, and manganese sulfide inclusions were always found in the pits along the chromium depleted zone.

L7 ANSWER 3 OF 36 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1986:615710 CAPLUS

DOCUMENT NUMBER: 105:215710

TITLE: Electrodeposition of nickel by asymmetric sine wave current

AUTHOR(S): Soares, D. M.; Teschke, O.

CORPORATE SOURCE: Inst. Fis. "Gleb Wataghin", Univ. Estad. Campinas, Campinas, 13100, Brazil

SOURCE: Advances in Hydrogen Energy (1986), 5(Hydrogen Energy Prog. 6, Vol. 1), 390-3  
CODEN: AHENDB; ISSN: 0276-2412

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Metal **electroplating** using a steady c.d. may **result** in

an irregular morphol. of the plates. Pulse techniques were shown to provide the best method to obtain good distribution of the metal which is a desirable characteristic for electrodes for electrolysis of H<sub>2</sub>O. A sine-wave current generator with a 200 A peak current was developed and tested using Ni as the metal. Adherence and uniformity of the **electroplate** was found to be a function of asym. sine-wave current parameters.

L7 ANSWER 4 OF 36 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1986:560861 CAPLUS

DOCUMENT NUMBER: 105:160861

TITLE: Kinetics of bright copper **electroplating** in sulfuric acid copper-**electroplating** solutions. 1. Adsorption of polypropylene glycol on a copper cathode

AUTHOR(S): Simkunaite, D.; Valentelis, L.; Matulis, J.

CORPORATE SOURCE: Inst. Khim. Khim. Tekhnol., Vilnius, USSR

SOURCE: Lietuvos TSR Mokslu Akademijos Darbai, Serija B: Chemija, Technika, Fizine Geografija (1986), (3), 51-8  
CODEN: LMDBAL; ISSN: 0024-2993

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB The method of galvanostatic switching on the current showed the state of the surface of a Cu electrode at different moments during the electrolysis in H<sub>2</sub>SO<sub>4</sub> solns. for Cu **electroplating**, containing CuSO<sub>4</sub> 0.03, H<sub>2</sub>SO<sub>4</sub> 0.43M, and polypropylene glycol (I) 0.1mM. On the basis of the exptl. **results**, the degree of adsorption ( $\theta$ ) by the Cu **electrode** surface and certain kinetic parameters of Cu **electroplating** were calculated (diffusion coefficient, Tafel consts., and exchange current). The  $\theta$  of the Cu electrode under conditions approximating equilibrium, when the change in Cu<sup>2+</sup> concentration in the near-electrode layer is small, is very significant. The discharge of Cu<sup>2+</sup> occurs on the surface, almost maximally blocked by the addition of I, where the values of  $\theta$  are as follows:  $\theta(I) \approx \theta(II)$ .apprx  
 $eq.\theta(III) \approx 0.94$ .

L7 ANSWER 5 OF 36 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1975:36511 CAPLUS

DOCUMENT NUMBER: 82:36511

TITLE: Electrodeposition of manganese from pure baths

AUTHOR(S): Gamali, I. V.; Trofimenko, V. V.; Vorozhko, A. V.

CORPORATE SOURCE: USSR

SOURCE: Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation) (1974), 47(9), 2035-9  
CODEN: ZPKHAB; ISSN: 0044-4618

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB The measurements of dependencies of Mn [7439-96-5] current efficiency on the cathode c.d. 0-0.4 A/cm<sup>2</sup> in purified neutral or ammoniacal solns. of 0-2.0 g-equiv/l. MnCl<sub>2</sub> and the **results** of x-ray structural and electron-microscopic studies of corresponding Mn plates proved that Mn **electroplating** in a bath where the ratio NH<sub>4</sub><sup>+</sup>/Mn<sup>2+</sup> = 2.5 is affected by the formation of complexes of Mn<sup>2+</sup> and NH<sub>3</sub> [7664-41-7] in the diffusion layer. The dependency of Mn plate structure on the c.d. showed 3 areas. In the 1st area, the Mn current efficiency uniformly increased, the deposition was in equilibrium and obtained plates were formed by macrocryst.  $\gamma$ -Mn. In the 2nd area, the decrease of current efficiency occurred and the crystalline structure contained  $\alpha$ - +  $\beta$ -Mn. In the 3rd area, the current efficiency practically did not depend on the c.d. and deposits with high internal stress and hardness were formed only by  $\alpha$ -Mn. The increase of NH<sub>4</sub><sup>+</sup> concentration or decrease of Mn<sup>2+</sup> concentration caused the displacement of the  $\alpha$ -Mn formation to the area of lower c.d. in both types of baths. In the solns. where ratio

$\text{NH}_4^+/\text{Mn}^{2+} = 2.5$ , the **electroplating** was affected by  $\text{Mn}(\text{OH})_2$ ; the Mn **current** efficiency at low c.d. was nearly equal to zero and the **electrode** was covered by a layer of hydrates.

L7 ANSWER 6 OF 36 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 2006(17):9519 COMPENDEX  
TITLE: Electrodeposition of magnetic CoPd thin films.  
Influence of plating condition.  
AUTHOR: Takata, Fernanda M. (Instituto de Quimica USP,  
05513-970 Sao Paulo, SP, Brazil); Sumodjo, Paulo T. A.  
MEETING TITLE: 208th Meeting of The Electrochemical Society.  
MEETING LOCATION: Los Angeles, CA, United States  
MEETING DATE: 16 Oct 2005-21 Oct 2005  
SOURCE: Meeting Abstracts v MA 2005-02 2005.p 1253  
SOURCE: 208th Meeting of The Electrochemical Society - Meeting  
Abstracts  
ISSN: 1091-8213  
PUBLICATION YEAR: 2005  
MEETING NUMBER: 67008  
DOCUMENT TYPE: Conference Article  
TREATMENT CODE: Theoretical  
LANGUAGE: English

AN 2006(17):9519 COMPENDEX

AB There is a great interest in magnetic thin films, especially in Co-based thin film alloys, due to their wide range of application in magnetic data reading/storage devices. These films are usually prepared by physical deposition methods which require ultrahigh vacuum techniques. Because of the well known advantages of **electroplating** over other means of thin films production, many studies involving magnetic thin films focus on the optimization of the electrodeposition process. Electrodeposition has several advantages over dry processes: (1) electrodeposition does not require vacuum technology and consequently is less expensive; (2) it can be easily upscaled for use in large size areas; (3) the experimental systems are simple; and (4) can be a room-temperature technology. It is well known the critical role of additives in electrodeposition processes. Thus, additives are necessary to produce electrodeposits with desired properties, to increase deposition rate, to stabilize the **plating** bath or even to process thermodynamically unfavorable processes. In this paper we report **results** on the electrodeposition of CoPd alloys from an alkaline chloride bath, containing glycine as additive. Current efficiencies (epsilon), composition (evaluated by atomic emission spectroscopy), microstructural, morphological and magnetic properties of the alloys are discussed in terms of the varied **plating** conditions: bath composition and pH, and **current** density. Glycine concentration was always twice the total metal concentration (maintained constant 0.3 mol L<sup>-1</sup>). The pH (adjusted with ammonia) and relative Co and Pd concentrations were varied. Current density (j) was varied from 5 to 175 mA cm<sup>-2</sup>. For the first series of experiments the pH of the solution was varied: 6.5, 7.5, 8.4 and 9.6. The metal concentration ratio was 80%Co:20%Pd. In this series of experiments, it was observed that epsilon was not affected by bath pH. For  $j \geq 50$  mA cm<sup>-2</sup>, the average epsilon value was 76%. For  $j < 50$  mA cm<sup>-2</sup>, epsilon increased with j reaching a maximum of 85%, for  $j \leq 25$  mA cm<sup>-2</sup> for all baths. Alloy composition was independent of the pH of the solution. For applied current densities  $\geq 50$  mA cm<sup>-2</sup> the CoPd alloy composition was: 72%at Co 28%at Pd. When the applied current density was  $< 50$  mA cm<sup>-2</sup> the Co content in the alloy diminishes. Thus, application of high current densities Co electrodeposited preferentially. This occurs because at lower current densities the **electrode** potential is low, close to Pd potential reduction ([similar to] 0 V vs Ag/AgCl). Application of high current densities ( $\geq 50$  mA cm<sup>-2</sup>), the potential is higher and, in this case Co is electrodeposited preferentially. The morphology for all the obtained films showed that it was dependent on the applied current density. For  $j \geq 50$  mA cm<sup>-2</sup> it was observed a typical cauliflower morphology. When the  $j < 50$

mA cm<sup>-2</sup> the deposit presented a smooth surface. When the applied current density was 5 mA cm<sup>-2</sup> the resulting film from a bath at pH 6.5 showed a smooth surface presenting cracks. Using baths with pHs 7.5, 8.4 and 9.6 the deposit presented a rough surface containing holes. No cracks were observed, though. As the bath became more alkaline more holes were observed on the surface. Deposits were amorphous. More studies are being done to explain these results. For the set of experiments where the bath composition was varied, the Co: Pd ratios were: 95%Co:5%Pd, 80%Co:20%Pd, 60%Co:40%Pd and 40%Co:60%Pd. The pH of the solution was set at 6.5. Current efficiencies obtained for the CoPd were not affected by bath composition. Using  $j \geq 50$  mA cm<sup>-2</sup>, epsilon was constant around 75%. The alloy composition is dependent of the bath composition and the applied current density. More Co is deposited as higher is Co content in the bath. The morphology for all films is the same as already described and depends on the applied current density: for  $j \geq 50$  mA cm<sup>-2</sup>: a cauliflower morphology; and for  $j < 50$  mA cm<sup>-2</sup>: a surface with cracks. However, holes were not observed independently of the bath composition or current density. Cracks were always observed and the more palladium content in the CoPd alloy, the more cracks. XRD analysis also revealed that the CoPd alloys are amorphous. Magnetic properties were obtained applying a parallel magnetic field. The magnetic properties were completely different from those CoPd alloys already related<sup>1-3</sup>. These films are not soft and the coercivities lie in the range from 84 to 555 Oe. The lowest and the highest coercivities were achieved when the bath composition was 95%Co:5%Pd and 40%Co:60%Pd, respectively. The magnetic saturation ( $M_s$ ) is the highest when the % Co content in the CoPd alloy is the highest, naturally.  $M_s$  obtained varied from 0 to 1.73 T. The  $M_s = 0$  was obtained for all alloy composition having a Pd content above 89% atomic. The value 1.73 T was obtained for the alloy composition 93.5%at Co/6.5%at Pd when the applied current density was 25 mA cm<sup>-2</sup>. Bath composition was 95%Co:5%Pd. The coercivities obtained in this study are completely independent of the pH of the solution and the alloy and bath compositions. 3 Refs.

L7 ANSWER 7 OF 36 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 2006(17):8191 COMPENDEX  
 TITLE: Formation of copper pillar bumps by high speed copper **electroplating**.  
 AUTHOR: Wu, Bill (Nexx Systems, Billerica, MA 01821-3904, United States); Liu, Zhen; Keigler, Arthur  
 MEETING TITLE: 208th Meeting of The Electrochemical Society.  
 MEETING LOCATION: Los Angeles, CA, United States  
 MEETING DATE: 16 Oct 2005-21 Oct 2005  
 SOURCE: Meeting Abstracts v MA 2005-02 2005.p 1343  
 SOURCE: 208th Meeting of The Electrochemical Society - Meeting Abstracts  
 ISSN: 1091-8213  
 PUBLICATION YEAR: 2005  
 MEETING NUMBER: 67008  
 DOCUMENT TYPE: Conference Article  
 TREATMENT CODE: Theoretical; Experimental  
 LANGUAGE: English

AN 2006(17):8191 COMPENDEX

AB Emerging higher density, faster speed, and lower-cost flip-chip packaging demands more critical processing than the previous generation of flip-chip devices. Pillar bumping permits cost-effective fine-pitch bumping with very predictable standoff distances for better under filling while improving thermal and electrical performances compared to standard solder bumps<sup>1</sup>. However, electrodeposition of 50 to 100 micron thick Cu pillars in deep photo patterned vias at an economical deposition rate is a challenge for wafer **electroplating** equipment. A high-speed through-mask copper deposition technique using a thin boundary layer wet processing module is presented in this paper<sup>2</sup>. The vertical wet process module is equipped with a novel fluid agitation technique, Shear Plate[trademark], to promote mass transfer at the wafer surface for high speed or alloy



electrodeposition applications, as well as other wet process applications requiring a thin and uniform boundary layer. The copper pillar shape has become a very important issue to improve the connection reliability between the solder cap and wiring board. This demands tightly controlled processing of the pillar bumps to achieve a straight wall, flat top surface and uniform **electrode** height. Factors affecting the bump shape include **plating** chemistry, **current** wave form, **current** density and the fluid boundary layer thickness. These have been examined to quantify their role in producing uniform and flat structures at **plating** rates up to 5 microns per minute. **Results** show that bath chemistry including additives has a big impact on the bump shape. A thin and uniform boundary layer, which is capable of contouring into the bump opening down to 30um, effectively enhances the mass transfer thus increases the deposition rate. 2 Refs.

L7 ANSWER 8 OF 36 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 2004(26):5760 COMPENDEX  
 TITLE: Application of elimination voltammetry in the study of **electroplating** processes on the graphite electrode.  
 AUTHOR: Orinakova, Renata (Faculty of Science Institute of Chemistry P.J. Safarik Univ., SK 041 54 Kosice, Slovakia); Trnkova, Libuse; Galova, Miriam; Supicova, Magdalena  
 SOURCE: Electrochimica Acta v 49 n 21 Sep 1 2004 2004.p 3587-3594  
 CODEN: ELCAAV ISSN: 0013-4686  
 PUBLICATION YEAR: 2004  
 DOCUMENT TYPE: Journal  
 TREATMENT CODE: Theoretical  
 LANGUAGE: English

AN 2004(26):5760 COMPENDEX

AB The **electrode** reaction mechanism of electrolytical coating by nickel on paraffin impregnated graphite **electrode** (PIGE) was investigated by cyclic voltammetry (CV) and elimination voltammetry with linear scan (EVLS). The EVLS, a relatively new method of processing electrochemical signals obtained by voltammetry, is able to eliminate some individual chosen currents from total voltammetric currents measured at different scan rates. During the electrodeposition of metals on the graphite **electrode**, hydrogen evolved from aqueous acidic solutions interferes with the **plating** process. The elimination of kinetic **current** arising due to hydrogen evolution enables one to study other processes proceeding at the **electrode**. Cyclic voltammograms for metal coating deposition/dissolution on the graphite **electrode** were measured at three scan rates (12.5, 25 and 50mV/s) and the EVLS functions were calculated for one or two eliminated currents. The **results** indicate the occurrence of surface reactions with the adsorption of intermediates on graphite. The application of EVLS provides deeper insight into the mechanism of **electrode** reaction during metal deposition. \$CPY 2004 Elsevier Ltd. All rights reserved. 20 Refs.

L7 ANSWER 9 OF 36 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 2003(18):6751 COMPENDEX  
 TITLE: Characterization of pulse plated Cu<sub>2</sub>O thin films.  
 AUTHOR: Mahalingam, T. (Department of Physics Alagappa University, Karaikudi 630 003, India); Chitra, J.S.P.; Ravi, G.; Chu, J.P.; Sebastian, P.J.  
 SOURCE: Surface and Coatings Technology v 168 n 2-3 May 22 2003 2003.p 111-114  
 ISSN: 0257-8972  
 PUBLICATION YEAR: 2003  
 DOCUMENT TYPE: Journal  
 TREATMENT CODE: Theoretical; Experimental

LANGUAGE: English

AN 2003(18):6751 COMPENDEX

AB Cuprous oxide (Cu<sub>2</sub>O) thin films are synthesised on Cu and tin oxide coated substrates by electrochemical pulse **plating** technique. The effect of **current** density and duty cycle on the growth of Cu<sub>2</sub>O films is studied. Structural studies reveal an optimum duty cycle of 33% to deposit well-crystallized Cu<sub>2</sub>O film. The effect of deposition parameters on the structural and optical properties are carried out. It is observed that annealing below 350 deg C improved the crystallinity and grain size of Cu<sub>2</sub>O films whereas annealing above 450 deg C exhibited the conversion of Cu<sub>2</sub>O into CuO. Photoelectrochemical solar cell studies showed improved performance for Cu<sub>2</sub>O **electrodes** and the **results** are discussed. \$CPY 2003 Elsevier Science B.V. All rights reserved. 16 Refs.

L7 ANSWER 10 OF 36 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 1999(28):2935 COMPENDEX

TITLE: Pulse current plating of TiB<sub>2</sub> in molten fluoride.

AUTHOR: Ett, Gerhard (Nuclear and Energy Research Inst, Sao Paulo, Braz); Pessine, Elisabete J.

SOURCE: Electrochimica Acta v 44 n 17 1999.p 2859-2870  
CODEN: ELCAAV ISSN: 0013-4686

PUBLICATION YEAR: 1999

DOCUMENT TYPE: Journal

TREATMENT CODE: Experimental

LANGUAGE: English

AN 1999(28):2935 COMPENDEX

AB The investigation of TiB<sub>2</sub> electrodeposition was carried out using continuous current **plating** (CCP) and pulse **current plating** (PCP), electrochemical techniques to produce a uniform and a very low porosity coating. The solvent used is a fluoride mixture (LiF-NaF-KF) with solutes K<sub>2</sub>TiF<sub>6</sub> and KBG<sub>4</sub> in a mass relation of one to four after treatment to remove moisture. The temperature was 600 degree C and all **results** were obtained on graphite **electrodes** as substrate. When necessary, the working **electrode** potentials were monitored with a Ni/Ni<sub>2</sub> plus parallel BN reference **electrode**. The electrodeposition with pulse current **plating** produces coatings with better quality, showing fewer cracks and better adhesion to the substrate and no anode effect was observed, when compared with those obtained by continuous current **plating**, for the conditions: frequencies between 5-100 Hz, tc/toff between 5/1-3/1 or ic/ioff-between 1.5 and 1.8. (Author abstract) 25 Refs.

L7 ANSWER 11 OF 36 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 1998(32):848 COMPENDEX

TITLE: Modeling the galvanostatic pulse and pulse reverse plating of nickel-iron alloys on a rotating disk electrode.

AUTHOR: Schultz, Henning (Univ of Waterloo, Waterloo, Ont, Can); Pritzker, Mark

SOURCE: Journal of the Electrochemical Society v 145 n 6 Jun 1998.p 2033-2042  
CODEN: JESOAN ISSN: 0013-4651

PUBLICATION YEAR: 1998

DOCUMENT TYPE: Journal

TREATMENT CODE: Bibliography; Theoretical

LANGUAGE: English

AN 1998(32):848 COMPENDEX

AB A model incorporating mass transfer effects, **electrode** kinetics, and homogeneous reaction is presented to describe galvanostatic pulse (PC) and pulse reverse (PR) **plating** of nickel-iron alloys from a sulfate bath onto a rotating disk **electrode**. It has been satisfactorily fit to experimental data taken from the literature and then used to investigate the effects of pulse mode and pulse parameters and to

compute the transient responses of the partial current densities and concentration **profiles**. A comparison of the effect of pulse mode on **plating** confirmed previously reported evidence that PC **plating** tends to produce alloys with similar iron content to those obtained by dc **plating**, particularly at high **current**. PR **plating** has been shown to be the most effective method of controlling iron content in the alloys. By increasing the ratio of the anodic pulse amplitude to the cathodic pulse amplitude, the extent of anomalous codeposition and the sensitivity of alloy composition to the applied current can be reduced. Analysis of the transient partial current densities confirmed experimental evidence that this improvement is due to preferential dissolution of iron during the anodic pulses. (Author abstract) 53 Refs.

L7 ANSWER 12 OF 36 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 1995(17):6113 COMPENDEX  
 TITLE: Application of scanning vibrating electrode technique to study the localized corrosion of hardfacing alloy in sodium chloride solution.  
 AUTHOR: Tsuru, Yutaka (Kyushu Inst of Tech., Tobata-ku, Jpn); Sekitani, Masanori; Nakamura, Zyunichi; Saitou, Akio  
 SOURCE: Zairyo/Journal of the Society of Materials Science, Japan v 43 n 494 Nov 1994.p 1387-1392  
 CODEN: ZARYAQ ISSN: 0514-5163  
 PUBLICATION YEAR: 1994  
 DOCUMENT TYPE: Journal  
 TREATMENT CODE: Experimental  
 LANGUAGE: Japanese

AN 1995(17):6113 COMPENDEX

AB A micro-**electrode** consisting of an Ag/AgCl reference **electrode** was prepared by using the **electroplating** method on a tungsten wire as a corrosion **current** sensor for the scanning vibrating **electrode** technique (SVET), and it was applied to measure the corrosion current **profile** over a hardfacing alloy after corrosion in 10minus 3 M sodium chloride. A good correlation was observed between the pitting corrosion current **profile** and the surface morphology of the corroded specimen. The pitting corrosion of the specimen developed in a chromium depleted zone between beads of weld metal, and manganese sulphide inclusions were always found in the pits along the chromium depleted zone. (Author abstract) 12 Refs.

L7 ANSWER 13 OF 36 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 1994(33):547 COMPENDEX  
 TITLE: Sulphur content and the hydrogen evolving activity of NiSx deposits using statistical experimental strategies.  
 AUTHOR: Wen, T.-C. (National Cheng Kung Univ, Tainan, Taiwan); Lin, S.-M.; Tsai, J.-M.  
 SOURCE: Journal of Applied Electrochemistry v 24 n 3 Mar 1994.p 233-238  
 CODEN: JAELEBJ ISSN: 0021-891X  
 PUBLICATION YEAR: 1994  
 DOCUMENT TYPE: Journal  
 TREATMENT CODE: Experimental  
 LANGUAGE: English

AN 1994(33):547 COMPENDEX

AB The effect of such **electroplating** conditions as **current** density, thiourea (TU) concentration, temperature and pH on the sulphur content of NiSx deposited **electrodes** has been systematically studied using fractional factorial design and response surface methodology. Fractional factorial analysis indicates that the main and interaction effects of TU concentration and current density are the key variables influencing sulphur content in a NiSx deposit. The

**result** show that, for deposits containing greater than 12 wt % sulphur content, hydrogen evolving activity increases with increasing sulfur content, while for those possessing less than 12 wt % sulphur content, hydrogen evolution overpotential decreases with increasing **electroplating current** density. (Edited author abstract)  
17 Refs.

L7 ANSWER 14 OF 36 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 1987(6):96936 COMPENDEX  
TITLE: KINETICS OF COPPER DISSOLUTION AT OXYGEN FREE AND PHOSPHORIZED ANODES.  
AUTHOR: Reid, Jonathan D. (IBM, Endicott, NY, USA); David, Allan P.  
MEETING TITLE: American Institute of Chemical Engineers 1986 Annual Meeting.  
MEETING ORGANIZER: AIChE, New York, NY, USA  
MEETING LOCATION: Miami Beach, FL, USA  
MEETING DATE: 02 Nov 1986-07 Nov 1986  
SOURCE: American Institute of Chemical Engineers, National Meeting 1986. Publ by AIChE, New York, NY, USA Pap 61a, 33p  
CODEN: ACENC9  
PUBLICATION YEAR: 1986  
MEETING NUMBER: 09516  
DOCUMENT TYPE: Conference Article  
LANGUAGE: English

AN 1987(6):96936 COMPENDEX

AB The steady-state current potential and impedance characteristics of copper disk **electrodes** submerged in typical sulfuric acid cupric sulfate **plating** solutions were studied. A single **charge** transfer step limits the dissolution rate over a wide range of interfacial current densities and solution agitation conditions at pure and oxygen free copper anodes. At phosphorized anodes, two kinetic steps contribute to limit the overall dissolution rate under most conditions. Addition of polyethylene glycol and chloride ion to solution polarized the dissolution process at each of the anode materials. Polarization appeared to **result** from formation of an adsorbed barrier to diffusion of dissolved ions from the interface, rather than a change in the dissolution mechanism. (Author abstract) 15 refs.

L7 ANSWER 15 OF 36 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 1985(11):155330 COMPENDEX  
DOCUMENT NUMBER: \*8516632  
; 851199412  
TITLE: Optimization of the High Speed Chromium-plating Process in Sulfate and Tetrachromate Electrolytes. OPTIMIERUNG DER HOCHGESCHWINDIGKEITS-VERCHROMUNG IN SULFAT- UND TETRACHROMATELEKTROLYTEN.  
AUTHOR: Drela, I. (Politechnika Wroclawska, Wroclaw, Pol); Kubicki, J.  
SOURCE: Metalloberflaeche v 39 n 5 May 1985 p 177-181  
CODEN: MOFEAV ISSN: 0026-0797  
PUBLICATION YEAR: 1985  
DOCUMENT TYPE: Journal  
TREATMENT CODE: Experimental  
LANGUAGE: German

AN 1985(11):155330 COMPENDEX DN \*8516632; 851199412

AB The authors report on investigations of the chromium-**plating** process at high **current** densities. For this purpose, use was made of rotary disk **electrodes** made out of platinum and the statistical method of experiment planning. The **results** obtained indicate that the parameters examined - current efficiency, electricity consumption per quantity of chromium deposited rate of deposition, microhardness and brightness of the chromium coating - depend in a complex

way on various factors. (Edited author abstract) 14 refs. In German.

L7 ANSWER 16 OF 36 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 1976(1):3830 COMPENDEX

DOCUMENT NUMBER: 76011495

TITLE: Effect of Electrolyte Temperature on Glossy Electrolytic Copper Plating Carried out in a Pyrophosphate Bath.

EFFECTUL TEMPERATURII ELECTROLITULUI ASUPRA PROCESULUI DE CUPRARE LUCIOASA DIN BAI PE BAZA DE PIROFOSFAT.

AUTHOR: Radovici, O. (Centrul de Chim Fiz din Bucuresti, Rom); Vass, Cecilia; Solacolu, I.

SOURCE: Electrotehnica v 22 n 2 Feb 1974 p 63-66  
CODEN: ELTTA3

PUBLICATION YEAR: 1974

LANGUAGE: Romanian

AN 1976(1):3830 COMPENDEX DN 76011495

AB The authors present the **results** of a study of the influence of the electrolyte temperature in a glossy copper **plating** pyrophosphate bath on **electrode** bias, **current** efficiency and **plating** structure. 5 refs. In Rumanian.

L7 ANSWER 17 OF 36 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 2006:8711461 INSPEC

TITLE: Investigation on capacitance mechanisms of Fe<sub>3</sub>O<sub>4</sub> electrochemical capacitors

AUTHOR: Shih-Yu Wang; Kuo-Chuan Ho; Shin-Liang Kuo; Nae-Lih Wu (Dept. of Chem. Eng., Nat. Taiwan Univ., Taipei, Taiwan)

SOURCE: Journal of the Electrochemical Society (Jan. 2006), vol.153, no.1, p. A75-80, 20 refs.

CODEN: JESOAN, ISSN: 0013-4651

SICI: 0013-4651(200601)153:1L.a75:ICMF;1-J

Price: 0013-4651/2006/153(1)/A75/6/\$7.00

Doc.No.: S0013-4651(06)04401-6

Published by: Electrochem. Soc, USA

DOCUMENT TYPE: Journal

TREATMENT CODE: Practical; Experimental

COUNTRY: United States

LANGUAGE: English

AN 2006:8711461 INSPEC

AB The capacitance mechanisms of magnetite (Fe<sub>3</sub>O<sub>4</sub>) electrochemical capacitor in Na<sub>2</sub>SO<sub>3</sub>, Na<sub>2</sub>SO<sub>4</sub>, and KOH aqueous solutions have been investigated by electrochemical quartz-crystal microbalance analysis, along with cyclic voltammetry and X-ray photoelectron spectroscopy. The oxide thin-film electrode was prepared by an **electroplating** method, and exhibits a capacitance of 170, 25, and 3 F/g in 1.0 M Na<sub>2</sub>SO<sub>3</sub>(aq), Na<sub>2</sub>SO<sub>4</sub>(aq), and KOH(aq), respectively. Strong specific adsorption of the anion species was evidenced in all solutions. Experimental **results** indicate that, in Na<sub>2</sub>SO<sub>3</sub>(aq), the capacitive current of magnetite electrode originates from the combination of electric double-layer capacitance (EDLC) and the pseudocapacitance that involves successive reduction of the specifically adsorbed sulfite anions, from SO<sub>3</sub><sup>2-</sup> through, e.g., S<sub>2</sub><sup>-</sup>, and vice versa. In Na<sub>2</sub>SO<sub>4</sub>(aq), the current is due entirely to EDLC. Furthermore, due to the specific adsorption behavior, magnetite exhibits high EDLC, >30 µF/cm<sup>2</sup>, in both Na<sub>2</sub>SO<sub>3</sub> and Na<sub>2</sub>SO<sub>4</sub> solutions. The lowest capacitance of magnetite was observed in KOH, which is attributed to the formation of an insulating layer on the magnetite surface

L7 ANSWER 18 OF 36 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 2004:8090414 INSPEC

DOCUMENT NUMBER: A2004-20-8115L-027

TITLE: Magnetic effect during copper electrodeposition:

diffusion process considerations

AUTHOR: Fricoteaux, P.; Jonvel, B.; Chopart, J.-P. (DTI, Univ. de Reims, France)

SOURCE: Journal of Physical Chemistry B (4 Sept. 2003), vol.107, no.35, p. 9459-64, 37 refs.  
CODEN: JPCBFK, ISSN: 1089-5647  
SICI: 1089-5647(20030904)107:35L:9459:MEDC;1-F  
Price: 1089-5647/2003/\$25.00  
Published by: ACS, USA

DOCUMENT TYPE: Journal

TREATMENT CODE: Experimental

COUNTRY: United States

LANGUAGE: English

AN 2004:8090414 INSPEC DN A2004-20-8115L-027

AB The copper electrodeposition from a sulfuric acid solution under magnetic field influence has been investigated. **Results** show that the apparent modifications of current-overpotential curves in the kinetic domain deal with modifications of a real electrode surface. An original cell able to jam the magnetoconvection was used to demonstrate that only a convective effect appears during copper **plating** under a magnetic field. A new relationship of the limiting current that takes into account the involved electron number to the power 4/3 and the kinematic viscosity to the power -2/3 can be established

L7 ANSWER 19 OF 36 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 2004:8089869 INSPEC

DOCUMENT NUMBER: A2004-20-8245-020

TITLE: Cobalt **electroplating** on nickel foam to improve performance of nickel positive electrode

AUTHOR: Wang Dian-long; Liu Ying; Dai Chang-song; Jiang Zhao-hua (Dept. of Appl. Chem., Harbin Inst. of Technol., China)

SOURCE: Battery Bimonthly (April 2004), vol.34, no.2, p. 104-5, 1 refs.  
CODEN: DNCHEP, ISSN: 1001-1579  
SICI: 1001-1579(200404)34:2L:104:CENF;1-G  
Published by: Hunan Light Ind. Res. Inst, China

DOCUMENT TYPE: Journal

TREATMENT CODE: Theoretical

COUNTRY: China

LANGUAGE: Chinese

AN 2004:8089869 INSPEC DN A2004-20-8245-020

AB The effects of **electroplating** of cobalt on nickel foam substrate on the discharge capacity of nickel positive electrode, especially the discharge at high rate were studied. The **results** showed that the cobalt **electroplating** layer on nickel foam substrates could improve the conductive network between active materials and foam nickel substrate, reduce the contact resistance between them and improve the high rate charge-discharge performance of nickel electrode

L7 ANSWER 20 OF 36 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 2003:7752184 INSPEC

DOCUMENT NUMBER: A2003-22-8115L-031

TITLE: Low- and high-frequency pulse current and pulse reverse plating of copper

AUTHOR: Tantavichet, N.; Pritzker, M.D. (Dept. of Chem. Eng., Univ. of Waterloo, Ont., Canada)

SOURCE: Journal of the Electrochemical Society (Oct. 2003), vol.150, no.10, p. C665-77, 36 refs.  
CODEN: JESOAN, ISSN: 0013-4651  
SICI: 0013-4651(200310)150:10L:C665:HFPC;1-P  
Price: 0013-4651/2003/150(10)/C665/13/\$7.00  
Doc.No.: S0013-4651(03)01910-4  
Published by: Electrochem. Soc, USA

DOCUMENT TYPE: Journal  
TREATMENT CODE: Experimental  
COUNTRY: United States  
LANGUAGE: English

AN 2003:7752184 INSPEC DN A2003-22-8115L-031

AB A model for galvanostatic pulse **plating** via pulse **current** (PC) and pulse reverse (PR) modes has been developed and compared with experimentally obtained **electrode** responses during copper deposition from a CuSO<sub>4</sub>-H<sub>2</sub>SO<sub>4</sub> solution onto a rotating disk **electrode**. In addition to all forms of mass transport, **electrode** kinetics, and homogeneous reactions, the model incorporates capacitance effects due to double-layer charging and adsorption of an intermediate. Two important modifications from our previous model have been made: fully transient rather than steady-state **electrode** kinetics and a series rather than parallel connection between the adsorption pseudocapitance and faradaic reactions. The model provides excellent quantitative agreement with the experimental **results** for both PR and PC **plating** for the entire range of conditions studied and shows considerable improvement over the previous version, particularly for PR **plating**. Fitting the model to some of the experimental data reveals that the double-layer capacity varies inversely with the square root of frequency for pulses of 500 Hz or more. **Electrode** responses do not totally become dc-like at frequencies as high as 50 kHz. Furthermore, at high enough frequencies ( $\geq 5$  kHz) during PR **plating**, the **electrode** potentials do not rise above the open-circuit potential during the reverse-time, indicating that copper dissolution does not occur and leading to a response similar to that observed during high-frequency PC **plating**

L7 ANSWER 21 OF 36 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 2003:7710504 INSPEC

DOCUMENT NUMBER: A2003-19-7865P-002

TITLE: Characterization of pulse plated Cu<sub>2</sub>O thin films

AUTHOR: Mahalingam, T.; Chitra, J.S.P.; (Dept. of Phys., Alagappa Univ., Karaikudi, India), Ravi, G.; Chu, J.P.; Sebastian, P.J.

SOURCE: Surface & Coatings Technology (22 May 2003), vol.168, no.2-3, p. 111-14, 16 refs.

CODEN: SCTEEJ, ISSN: 0257-8972

SICI: 0257-8972(20030522)168:2/3L:111:CPPC;1-9

Price: 0257-8972/03/\$30.00

Doc.No.: S0257-8972(03)00211-1

Published by: Elsevier, Switzerland

DOCUMENT TYPE: Journal  
TREATMENT CODE: Experimental  
COUNTRY: Switzerland  
LANGUAGE: English

AN 2003:7710504 INSPEC DN A2003-19-7865P-002

AB Cuprous oxide (Cu<sub>2</sub>O) thin films are synthesised on Cu and tin oxide coated substrates by electrochemical pulse **plating** technique. The effect of **current** density and duty cycle on the growth of Cu<sub>2</sub>O films is studied. Structural studies reveal an optimum duty cycle of 33% to deposit well-crystallized Cu<sub>2</sub>O film. The effect of deposition parameters on the structural and optical properties are carried out. It is observed that annealing below 350°C improved the crystallinity and grain size of Cu<sub>2</sub>O films whereas annealing above 450°C exhibited the conversion of Cu<sub>2</sub>O into CuO. Photoelectrochemical solar cell studies showed improved performance for Cu<sub>2</sub>O **electrodes** and the **results** are discussed

L7 ANSWER 22 OF 36 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 2003:7660627 INSPEC

DOCUMENT NUMBER: A2003-15-8630F-009; B2003-07-8410E-048

TITLE: R&D of current collector of negative electrode for zinc-nickel secondary battery

AUTHOR: Yang En-dong; Yang Hua-bin; Ji Jing-tao; Sun Hua; Wang Xiao-dan; Zhou Zuo-xiang; Yuan Hua-tang (Inst. of New Energy Material Chem., Nankai Univ., Tianjin, China)

SOURCE: Chinese Journal of Power Sources (Jan. 2003), vol.27, no.1, p. 31-5, 12 refs.  
 CODEN: DIJIFT, ISSN: 1002-087X  
 SICI: 1002-087X(200301)27:1L.31:CCNE;1-L  
 Published by: Tianjin Inst. Power Sources, China

DOCUMENT TYPE: Journal

TREATMENT CODE: Experimental

COUNTRY: China

LANGUAGE: Chinese

AN 2003:7660627 INSPEC DN A2003-15-8630F-009; B2003-07-8410E-048

AB The properties of zinc **electrodes** using various metals and Cu-Zn alloy (brass) as current collectors were studied by potentiostatic polarization method. The **results** show that brass, which has even properties and good combination property, is a good current collector for zinc **electrode** because its properties, such as self-corrosion potential, overpotential of hydrogen evolution, corrosion current density, Tafel slope  $b_a$ , passivation potential  $\phi_p$  and passivation current density, are similar to those of silver. Foamed brass was prepared by chemical **plating** Cu on the surface of foamed plastic and then alloy **electroplating** brass. The material, as a **current** collector, can avoid the over-saturation of zincate solution, inhibit the growth of zinc dendrite, improve the charge/discharge performance, and increase the cycle life of zinc **electrode**

L7 ANSWER 23 OF 36 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 2002:7385890 INSPEC

DOCUMENT NUMBER: A2002-21-8115L-019; B2002-10-0520J-037; C2002-10-7480-115

TITLE: A new 3D **electroplating** simulation & design tool

AUTHOR: Druesne, F.; (Dpt. Calcul, CETIM, Senlis, France), Afzali, M.; Mouton, R.

SOURCE: Plating and Surface Finishing (June 2002), vol.89, no.6, p. 20-4, 12 refs.  
 CODEN: PSFMDH, ISSN: 0360-3164  
 SICI: 0360-3164(200206)89:6L.20:ESDT;1-3  
 Published by: American Electroplaters & Surface Finishers Soc, USA

DOCUMENT TYPE: Journal

TREATMENT CODE: New Development; Practical; Theoretical

COUNTRY: United States

LANGUAGE: English

AN 2002:7385890 INSPEC DN A2002-21-8115L-019; B2002-10-0520J-037; C2002-10-7480-115

AB **Electroplating** process energy and material costs are very important considerations in product manufacturing. The most important **plating** criteria, however, are quality and plated uniformity of the deposited metals. Simulation tools can help to obtain better **plating results**. New **plating** simulation tools are now available that will run on PC/Windows® computers and can point the way to optimizing many common **electroplating** processes. Software packages are available that are versatile and user-friendly. These tools have been designed to optimize **electroplating** cells and racks. An accurate analysis is required to determine distribution of deposited thickness, current densities, and electrode potentials. A good **plating** simulation tool can help an engineering team find the most reliable rack configuration based on the geometrical description of rack, the parts to be plated, and from



calculation of the electrochemical properties of the process being studied

L7 ANSWER 24 OF 36 INSPEC (C) 2006 IET on STN  
ACCESSION NUMBER: 2002:7235943 INSPEC  
DOCUMENT NUMBER: A2002-10-8115L-033  
TITLE: Studying non-uniform electrodeposition using the wire beam electrode method  
AUTHOR: Yong-Jun Tan (Sch. of Mater. Eng., Nanyang Technol. Univ., Singapore)  
SOURCE: International Journal of Modern Physics B (20 Jan. 2002), vol.16, no.1-2, p. 144-50, 17 refs.  
CODEN: IJPBEV, ISSN: 0217-9792  
SICI: 0217-9792(20020120)16:1/2L.144:SUEU;1-4  
Published by: World Scientific, Singapore  
Conference: Crystallization and Interfacial Processes. Symposium D of the International Conference on Material for Advanced Technologies 2001, Singapore, 1-6 July 2001  
DOCUMENT TYPE: Conference; Conference Article; Journal  
TREATMENT CODE: Experimental  
COUNTRY: Singapore  
LANGUAGE: English

AN 2002:7235943 INSPEC DN A2002-10-8115L-033  
AB Nonuniform electrodeposition is a major concern in almost every practical electrodeposition application. The ability to control nonuniformity in electrodeposition is the key to successful **plating** for corrosion resistance, and more especially to meeting the very exacting requirements of electroforming, electrodeposition of nanoscale and nanophase materials, and various other engineering uses of electrodeposition. This paper presents a novel technique namely the wire beam **electrode** (WBE) for characterizing and monitoring nonuniform **electroplating** processes. For the first time, the nonuniform distribution of **electroplating currents** (NDEC) has been mapped. Preliminary experimental **results** indicated that electrochemical heterogeneity was the key factor affecting NDEC. The secondary current distribution, rather than the primary current distribution, played a major role in determining the NDEC. This work suggests that the WBE is a practical tool for characterizing and optimizing electrodeposition processes and for verifying the accuracy and completeness of mathematic modelling of electrodeposition processes

L7 ANSWER 25 OF 36 INSPEC (C) 2006 IET on STN  
ACCESSION NUMBER: 2002:7195591 INSPEC  
DOCUMENT NUMBER: A2002-07-6855-092  
TITLE: Effect of electrolytic conditions on the crystal orientation of electrodeposited zinc  
AUTHOR: Kurosaki, M.; Yamasaki, N. (Steel Res. Lab., Nippon Steel Corp., Chiba, Japan)  
SOURCE: Second International Conference on Processing Materials for Properties. Proceedings, 2000, p. 773-8 of xxxviii+1137 pp., 11 refs.  
Editor(s): Mishra, B.; Yamauchi, C.  
ISBN: 0 87339 495 X  
Published by: TMS - Miner. Metals & Mater. Soc, Warrendale, PA, USA  
Conference: Second International Conference on Processing Materials for Properties. Proceedings, San Francisco, CA, USA, 5-8 Nov. 2000  
Sponsor(s): Minerals, Metals & Mater. Soc. - TMS; Mining & Mater. Process. Inst. Japan  
DOCUMENT TYPE: Conference; Conference Article  
TREATMENT CODE: Theoretical; Experimental  
COUNTRY: United States

LANGUAGE: English

AN 2002:7195591 INSPEC DN A2002-07-6855-092

AB The effects of **plating** conditions on the crystal orientation of electrodeposited zinc were investigated by varying electrolyte flow rate and current density. Precipitation of the Zn (00.2) basal plane is promoted at lower current density and higher flow velocity. The effect of the flow velocity on the mass transport was evaluated based on the polarization measurement in which Cu was used as the tracer. As a **result**, it has been clarified that the crystal orientation of electrodeposited zinc can be uniquely arranged by the overvoltage ( $iU-0.5$ ) that can be simply calculated by considering the current density and boundary layer thickness. At the same time, the electrode potential during electrodeposition which can be calculated by using a model based on the competitive reactions of hydrogen reduction and zinc reduction exhibits an extremely good correlation with the crystal orientation of electrodeposited zinc

L7 ANSWER 26 OF 36 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 1997:5776139 INSPEC

DOCUMENT NUMBER: A1998-02-8115L-017; B1998-01-0520-039

TITLE: New electrochemical method to study nuclei formation in electrodeposition

AUTHOR: Yu Weiping; (Beijing Univ. of Aeronaut. & Astronaut., China), Duan Shuzhen

SOURCE: Journal of Beijing University of Aeronautics and Astronautics (Aug. 1997), vol.23, no.4, p. 530-4, 5 refs.

CODEN: BHHDE8, ISSN: 1001-5965

SICI: 1001-5965(199708)23:4L:530:EMSN;1-O

Published by: Beijing Univ. of Aeronaut. & Astronaut, China

DOCUMENT TYPE: Journal

TREATMENT CODE: Experimental

COUNTRY: China

LANGUAGE: Chinese

AN 1997:5776139 INSPEC DN A1998-02-8115L-017; B1998-01-0520-039

AB A square current wave with a small amplitude was superimposed on the **plating current** to study the nuclei formation in electrodeposition. It has been confirmed, theoretically, that the responding chronopotentiogram can be used to describe the character of the **electrode** in electrodeposition and the overpotential peak is caused by the sluggish nucleation. It was shown from experimental **results** that, in the initial stage of **plating** Ni-P amorphous alloy, the required energy to form nuclei was much smaller than that in the case of **plating** crystalline Ni

L7 ANSWER 27 OF 36 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 1995:4975691 INSPEC

DOCUMENT NUMBER: A1995-14-8780-003; B1995-08-7500-001

TITLE: A study on the fabrication of micro biological cell-manipulator

AUTHOR: Sang-Wook Lee; Yong-Kweon Kim

SOURCE: Transactions of the Korean Institute of Electrical Engineers (Feb. 1995), vol.44, no.2, p. 186-91, 11 refs.

CODEN: CHNODD, ISSN: 0254-4172

DOCUMENT TYPE: Journal

TREATMENT CODE: Application; Practical

COUNTRY: Korea, Democratic Peoples Republic of

LANGUAGE: Korean

AN 1995:4975691 INSPEC DN A1995-14-8780-003; B1995-08-7500-001

AB The fabrication process of microbiological cell-manipulators is presented. The microbiological cell-manipulators are composed of flow channels, insulating structures and electrodes whose thickness is about

20  $\mu\text{m}$ . The insulating structures and the flow channels are fabricated using a photosensitive polyimide by a photolithography process. Using a conductive substrate (n-type silicon), the electrodes are **electroplated** selectively on the **electroplating** site without any seed layers. Also, the boron implantation process is added for the reduction of the leakage current beneath the electrodes. In experimental **results**, the leakage current is reduced from 100nA to 24 nA. The fusion chamber and the selector are designed and fabricated, and the fabrication process and the fabrication **results** are discussed

L7 ANSWER 28 OF 36 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 1995:4843588 INSPEC  
DOCUMENT NUMBER: A1995-02-8160B-018  
TITLE: Application of scanning vibrating electrode technique to study the localized corrosion of hardfacing alloy in sodium chloride solution  
AUTHOR: Tsuru, Y.; (Dept. of Mater. Sci. & Eng., Kyushu Inst. of Technol., Kitakyushu, Japan), Sekitani, M.; Nakamura, Z.; Saitou, A.  
SOURCE: Journal of the Society of Materials Science, Japan (Nov. 1994), vol.43, no.494, p. 1387-92, 12 refs. CODEN: ZARYAQ, ISSN: 0514-5163  
DOCUMENT TYPE: Journal  
TREATMENT CODE: Experimental  
COUNTRY: Japan  
LANGUAGE: Japanese

AN 1995:4843588 INSPEC DN A1995-02-8160B-018

AB A micro-**electrode** consisting of an Ag/AgCl reference **electrode** was prepared by using the **electroplating** method on a tungsten wire as a corrosion **current** sensor for the scanning vibrating **electrode** technique (SVET), and it was applied to measure the corrosion current **profile** over a hardfacing alloy after corrosion in 10<sup>-3</sup> M sodium chloride. A good correlation was observed between the pitting corrosion current **profile** and the surface morphology of the corroded specimen. The pitting corrosion of the specimen developed in a chromium depleted zone between beads of weld metal, and manganese sulphide inclusions were always found in the pits along the chromium depleted zone

L7 ANSWER 29 OF 36 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 1990:3542330 INSPEC  
DOCUMENT NUMBER: B1990-011623  
TITLE: Sensors for ferric ion in plating solutions  
AUTHOR: Savinell, R.F.; (Case Western Reserve Univ., Cleveland, OH, USA), Tianying Mi; Chi-Jin Chen; Chung-Chiun Liu  
SOURCE: Plating and Surface Finishing (Aug. 1989), vol.76, no.8, p. 40-4, 5 refs. CODEN: PSFMDH, ISSN: 0360-3164  
DOCUMENT TYPE: Journal  
TREATMENT CODE: Experimental  
COUNTRY: United States  
LANGUAGE: English

AN 1990:3542330 INSPEC DN B1990-011623

AB Chemical sensors based on electrochemical principles and fabricated by microelectronic thick film metallization technique are being developed for the detection of ions in **plating** solutions. The advantage of this approach is that small, reliable and fast-responding sensors can be developed by placing the sensing elements-working, counter and reference electrodes-of an electrochemical cell on a single, small substrate. The **results** of earlier reported mathematical models were applied to the design of an optimal-performing array of gold band electrodes for the sensor. The **results** of testing this sensor

on quantitative detection of ferric ion in zinc-iron **plating** baths are described. A sensor response based on the transient current output following a cathodic potential step was found to be linear and reproducible with ferric ion concentration in the range of 0 to 0.1 M. The sensor was stable and reproducible in a test lasting more than 26 days. The sensor output was not significantly affected by the presence of citric acid. A protecting shield eliminated any solution flow effects. This sensor design works well for this application and could be useful for other **plating** applications as well

L7 ANSWER 30 OF 36 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 1982:1825042 INSPEC  
DOCUMENT NUMBER: A1982-031930; B1982-018809  
TITLE: The use of graphite cloth electrodes for the recovery and separation of gold  
AUTHOR: Zur, C.; Ariel, M. (Dept. of Chem., Technion-IIT, Haifa, Israel)  
SOURCE: Journal of Applied Electrochemistry (Sept. 1981), vol.11, no.5, p. 639-44, 10 refs.  
CODEN: JAELEBJ, ISSN: 0021-891X  
DOCUMENT TYPE: Journal  
TREATMENT CODE: Experimental  
COUNTRY: United Kingdom  
LANGUAGE: English

AN 1982:1825042 INSPEC DN A1982-031930; B1982-018809

AB The electrodeposition and recovery of gold from spent **electroplating**, bath solutions using a graphite cloth electrode in a flow-through cell is described. Optimized conditions of flow rate, current densities, screen potentials and additives were established to achieve high-percentage recoveries and good separation of the Au from admixtures of base metals (Cu, Cd). The **results** are sufficiently encouraging to serve as the basis for a scaled-up process

L7 ANSWER 31 OF 36 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 1980:1466564 INSPEC  
DOCUMENT NUMBER: B1980-011662  
TITLE: Gold diffusion barrier  
AUTHOR: Mansbridge, D.S.; Morgan, W.M. (IBM Corp., Armonk, NY, USA)  
SOURCE: IBM Technical Disclosure Bulletin (July 1979), vol.22, no.2, p. 807, 0 refs.  
CODEN: IBMTAA, ISSN: 0018-8689  
DOCUMENT TYPE: Journal  
TREATMENT CODE: Application  
COUNTRY: United States  
LANGUAGE: English

AN 1980:1466564 INSPEC DN B1980-011662

AB In the fabrication of an integrated passive display device, e.g. liquid crystal or electrochromic, an array of silver **electrodes** may be formed by **electroplating**. The silver **electrode** array metallurgy is itself defined by an underlying evaporated gold contact pattern, exposed through a polyimide insulating layer, and through which **plating current** can be passed. The process requires that the polyimide should be cured finally at 350°C after evaporation of the gold. As a **result** of this curing, a tenacious organic film is formed on the gold which inhibits subsequent **plating**. The problem is overcome by evaporating 1000-2000 Å of nickel over the gold to act as a diffusion barrier

L7 ANSWER 32 OF 36 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 1976:857816 INSPEC  
DOCUMENT NUMBER: B1976-007705  
TITLE: Deep electrochemical palladium plating for the activation of the gas diffusion electrodes of fuel

cells

AUTHOR: Balasescu, Gh.; Ionescu, D. (ICPE, Bucuresti, Romania)

SOURCE: Lucrarile ICPE (1975), no.30, p. 119-24, 6 refs.  
CODEN: LICPAU, ISSN: 0250-3034

DOCUMENT TYPE: Journal

TREATMENT CODE: Application; Practical

COUNTRY: Romania

LANGUAGE: Romanian

AN 1976:857816 INSPEC DN B1976-007705

AB Presents several **results**, concerning deep uniform catalyst **plating**, using a superposed currents technique. Experiments contributed to the elaboration of an apparatus by means of which the working conditions of the palladium **plating** in sintered nickel porous structures are studied and established

L7 ANSWER 33 OF 36 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 1975:704254 INSPEC

DOCUMENT NUMBER: B1975-000482

TITLE: Current distribution on resistive metal electrodes

AUTHOR: Tvarusko, A. (Western electric Co., Princeton, NJ, USA)

SOURCE: Plating (Sept. 1974), vol.61, no.9, p. 846-9, 20 refs.  
CODEN: PLATAT, ISSN: 0032-1397

DOCUMENT TYPE: Journal

TREATMENT CODE: Experimental

COUNTRY: United States

LANGUAGE: English

AN 1975:704254 INSPEC DN B1975-000482

AB Current distribution was measured in situ on metal wires of various resistances during electrodeposition and reduction of redox species. The nonuniformity of the current distribution along the wires increased with increasing substrate resistance and applied current. Small diameter wires with various **electroplated** layers used for magnetic plated wire memories, and thin, narrow, copper deposits on printed and miniaturized circuits are discussed in detail

L7 ANSWER 34 OF 36 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 1974:640545 INSPEC

DOCUMENT NUMBER: B1974-022064

TITLE: Influence of electrolyte temperature on glossy electrolytic copper plating carried out in pyrophosphate bath

AUTHOR: Radovici, O.; Vass, C.; Solacolu, I.

SOURCE: Electrotehnica (Feb. 1974), vol.22, no.2, p. 63-6, 5 refs.  
CODEN: ELTTA3, ISSN: 0013-5321

DOCUMENT TYPE: Journal

TREATMENT CODE: Experimental

COUNTRY: Romania

LANGUAGE: Romanian

AN 1974:640545 INSPEC DN B1974-022064

AB Presents **results** of a study carried out to assess the influence of the electrolyte temperature, in a glossy copper **plating** pyrophosphate bath, on **electrode** bias, **current** efficiency and **plating** structure

L7 ANSWER 35 OF 36 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 1972:434861 INSPEC

DOCUMENT NUMBER: B1972-034976

TITLE: Plating fixture

AUTHOR: Bacon, D.E.; Ketner, D.E.

SOURCE: Technical Digest (April 1972), no.26, p. 5  
CODEN: TCHDAV, ISSN: 0497-0411

DOCUMENT TYPE: Journal

TREATMENT CODE: New Development  
COUNTRY: United States  
LANGUAGE: English

AN 1972:434861 INSPEC DN B1972-034976

AB In an **electroplating** operation, problems frequently occur when **electrode** contacts corrode and the **plating current** changes as a **result** of the corroded contacts. Such problems, due to faulty current connections, are most likely to occur when a spring clamp connecting a cable to a **plating** rack loses its tension due to corrosion. These problems are reduced to a minimum with the present **plating** fixture and a cam mechanism to establish electrical contact to the **plating** fixture

L7 ANSWER 36 OF 36 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 1971:308010 INSPEC

DOCUMENT NUMBER: B1971-036093

TITLE: Deposition of chrome-containing iron  
**electroplating**

AUTHOR: Sass, S.

SOURCE: Lectures of the 3rd symposium on electroplating, 1971,  
p. 203-12 of iii+242 pp.

Published by: Sci. Soc. Mech. Engrs, Budapest, Hungary

Conference: Lectures of the 3rd symposium on  
electroplating, Budapest, Hungary, 1-3 Dec. 1970

Sponsor(s): Sci. Soc. Mech. Engrs

DOCUMENT TYPE: Conference; Conference Article

TREATMENT CODE: Experimental

COUNTRY: Hungary

LANGUAGE: German

AN 1971:308010 INSPEC DN B1971-036093

AB Iron **electroplating** is important for protection from erosion by solder of copper soldering bits. **Results** of experiments in **electroplating** are described with reference to electrolyte, temperature, **current** density, **electrode** spacing, and time. Tabular summaries are given